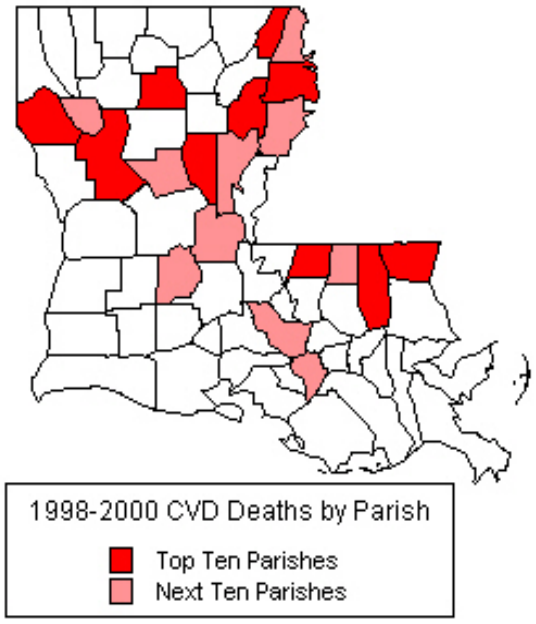
2002

LOUISIANA STATE OF THE HEART & STROKE REPORT



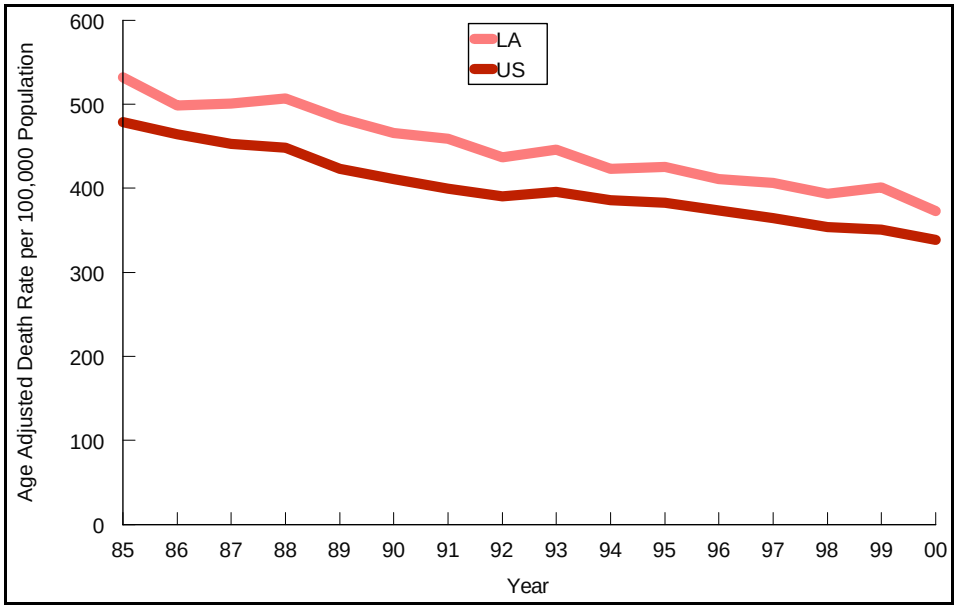
Statistics for Cardiovascular Diseases, Including Parish-by-Parish Mortality

Cardiovascular disease (CVD) including heart disease and stroke, is the number one killer in every area of the state. More Louisianans die each year from CVD than from any other cause.

Published by:

American Heart Association®
Fighting Heart Disease and Stroke

"Between 1985-1992, the CVD death rate in Louisiana declined by an average of 2.4% per year. In contrast, from 1992-2000, the average annual decrease slowed to only 1.9% per year".



Louisiana Office of Public Health

OFFICE OF PUBLIC HEALTH
LOUISIANA
Department of HEALTH and HOSPITALS

Contents

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Useful Web Sites

- AHA: americanheart.org
- Louisiana Office of Public Health: http://oph.dhh.state.la.us
- Mortality Data: http://wonder.cdc.gov
- BRFSS: http://www.cdc.gov/nccdphp/brfss
- CDC's Cardiovascular Health Program: http://www.cdc.gov/nccdphp/cvd/

Executive Summary

- Cardiovascular disease (CVD), including heart disease and stroke, was the number one killer of Louisianans in 2000, accounting for 36 % of all deaths.
- In 2000, approximately 15,000 Louisianans died due to CVD.
- The CVD death rate in Louisiana was 10% higher than the national rate in 2000.
- CVD kills more women than men in Louisiana, although the age-adjusted mortality rate is higher for men.
- For both men and women in Louisiana, age-adjusted CVD death rates are higher for African Americans compared to Whites.
- Most CVD deaths in Louisiana were classified as coronary heart disease (49%) or stroke (17%).
- Louisiana had the sixth highest mortality rate due to diseases of heart among the 50 states in 1999, and the tenth highest mortality rate for stroke.
- CVD was responsible for more than 76,000 hospitalizations in 1999 and $1.4 *billion* in hospital charges.
- Much of the burden of death and disability from CVD in Louisiana may be prevented by decreasing the high prevalence of preventable risk factors such as smoking, high blood pressure, overweight, lack of regular physical activity, and poor nutrition.
- In 2000, one in four Louisiana adults reported that they currently smoked.
- In 2000, 85% of Louisiana adults reported not being physically active on a regular basis.
- Over half (60%) of all Louisiana adults were overweight or obese.
- A great proportion of death and disability due to CVD is preventable. A collaborative effort involving individuals, communities, schools, and workplaces to create ‘heart-healthy’ environments and policies is needed to reduce the burden of cardiovascular disease thus paving the way for a ‘heart-healthy’ Louisiana.

Introduction

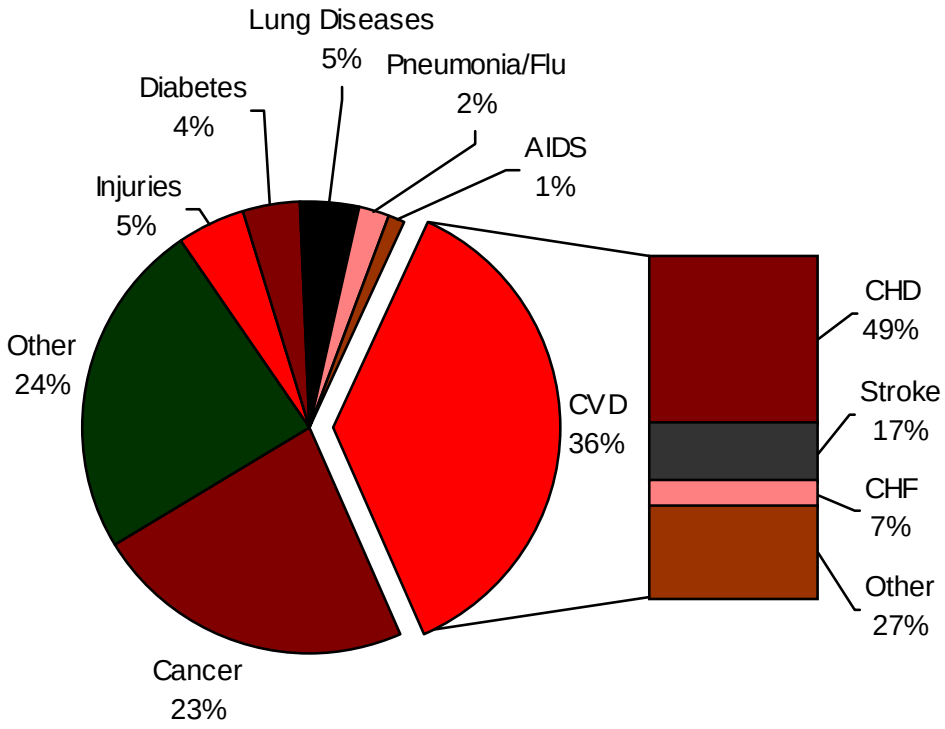
Cardiovascular disease (CVD) is a group of diseases of the heart and blood vessels, including coronary heart disease (CHD), the disease that leads to heart attack, and diseases of the blood vessels that lead to stroke or hemorrhage. CVD is the leading cause of death for both men and women in all racial and ethnic groups in Louisiana and the United States. Almost 1 million people in the US die of CVD each year, accounting for more than 40% of all deaths.

In Louisiana, CVD caused 14,977 deaths in 2000, 36% of all deaths that year (Figure 1). Coronary heart disease and stroke combined, accounted for about 66% of CVD deaths.

Death and disability from CVD are related to a number of risk factors, including smoking, high blood pressure, high blood cholesterol, lack of regular physical activity, overweight/ obesity, diabetes, and poor nutrition. The adoption of a healthier lifestyle will lower the risk of developing CVD or reduce the severity of existing disease.

This report describes the burden of CVD in Louisiana. Its purpose is to present a brief overview of CVD death rates in Louisiana during the past 15 years; to report parish-specific death rates; to report the number of hospitalizations for CVD; and to describe the prevalence of CVD risk factors among adult Louisianans compared to the nation as a whole.

Figure 1. Leading causes of death in Louisiana, 2000



Trends In Cardiovascular Disease Mortality In Louisiana

Cardiovascular disease death rates have shown a steady decline both in Louisiana and the U.S. over the past 15 years (Figure 2). The causes of the decline are debated, but presumably are related to the decline in cigarette smoking during the '80s, improved blood pressure control, and improvements in medical care. Among the 50 states in 1999, Louisiana had the sixth highest death rate due to heart disease.

Although the death rate due to CVD in Louisiana continues to decline, the rate of decline is slowing. From 1985-1992, the CVD death rate declined by an average of 2.4% per year. In contrast, from 1992-2000, the average annual decrease slowed to only 1.9% per year (Figure 2). Over the entire time period, 1985-2000, Louisiana's CVD death rate was consistently higher than the US rate. In the year 2000, Louisiana's rate was 10% above the US median.

CVD death rates differ by sex and race. African Americans have higher CVD death rates than Whites, and men have higher rates than women. In 2000, the CVD death rate was 25% higher for African American males than White males, and 31% higher for African American females than White females (Figure 3).

In 2000, the age-adjusted CVD death rate was 448.3 for men and 316.4 for women; however, 7,929 females and 7,048 males in Louisiana died from CVD. More women die from CVD because women are more likely to live to older ages when CVD is more common.

CVD, however, is not just a disease of old age. The process of arterial narrowing, which causes heart attacks and strokes, starts soon after birth. The age at which blocked arteries actually kill varies greatly, and death can occur before old age. Of Louisianans who died from CVD in 2000, 21% were younger than 65 years of age (Figure 4).

A greater percentage of African Americans (32%) who died of CVD in 2000, were less than 65 years of age, compared to Whites (16%). More than a third (39%) of African American men who died of CVD in 2000 were less than 65 years, whereas only 23% of White men who died of CVD were less than 65 years.

Figure 2. Cardiovascular disease death rates in Louisiana and the United States, 1985– 2000

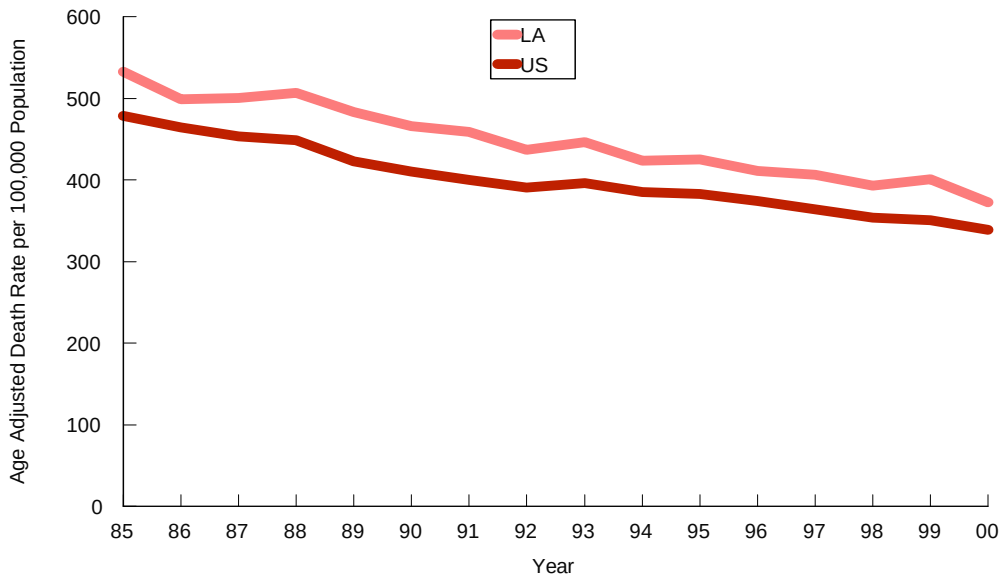


Figure 3. Cardiovascular disease death rates in Louisiana by race and sex, 2000

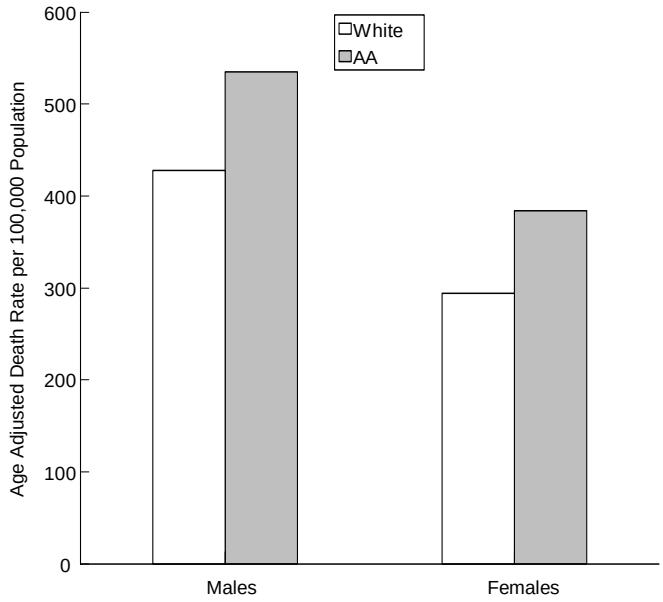
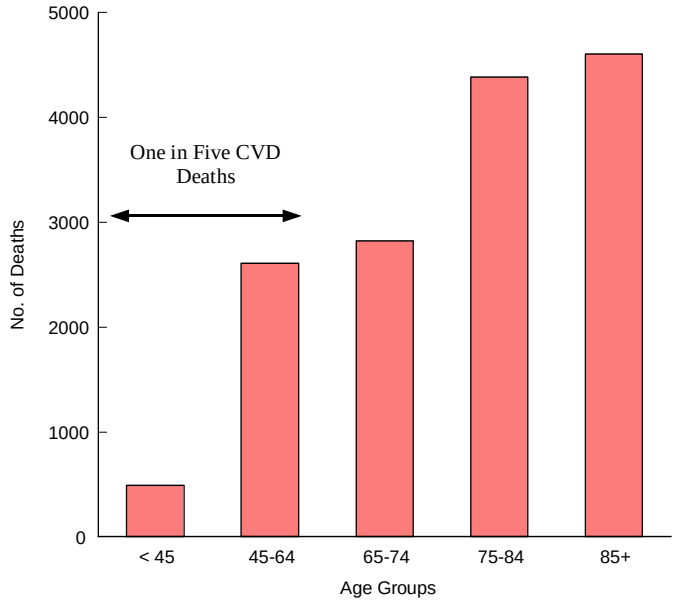


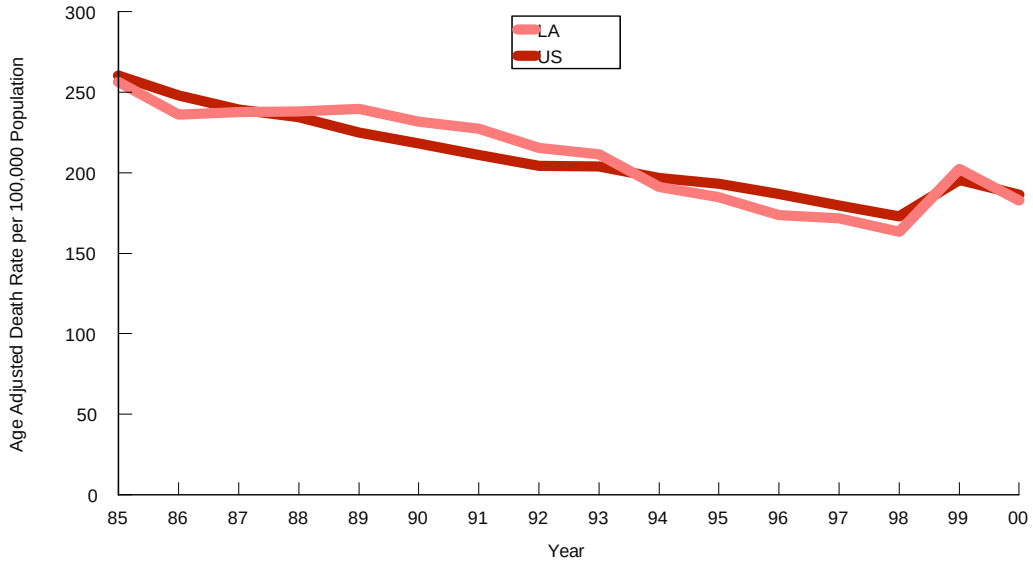
Figure 4. Cardiovascular disease deaths in Louisiana by age group, 2000



Coronary Heart Disease Mortality In Louisiana

Coronary heart disease (CHD), also known as Ischemic Heart Disease (IHD), refers to narrowing of the coronary arteries, which reduces blood flow and oxygen to the heart. CHD includes acute myocardial infarction ("heart attacks") and complications resulting from previous myocardial infarctions. Of the 14,977 cardiovascular deaths in Louisiana in 2000, 7,384 (49%) were from coronary heart disease. Deaths due to coronary heart disease have decreased over the past 15 years nationally, and the death rate in Louisiana has followed a similar decline (Figure 5).

Figure 5. Coronary Heart Disease Deaths in Louisiana and United States, 1985-2000



Gender, more than race, is a predictor of coronary heart disease. In 2000, the age-adjusted death rate from coronary heart disease was 40% higher for men (241.2) as compared to women (141.7). African American (249.5) and White (243.5) men had similar age-adjusted death rates when compared to an age adjusted rate of 156.9 among African American females and 138.0 among White females (Figure 6).

Similar to overall CVD, the death rate from CHD increases with age, but 22% of CVD deaths in Louisiana were in persons less than 65 years (Figure 7).

Figure 6. Coronary Heart Disease death rates in Louisiana by race and sex, 2000

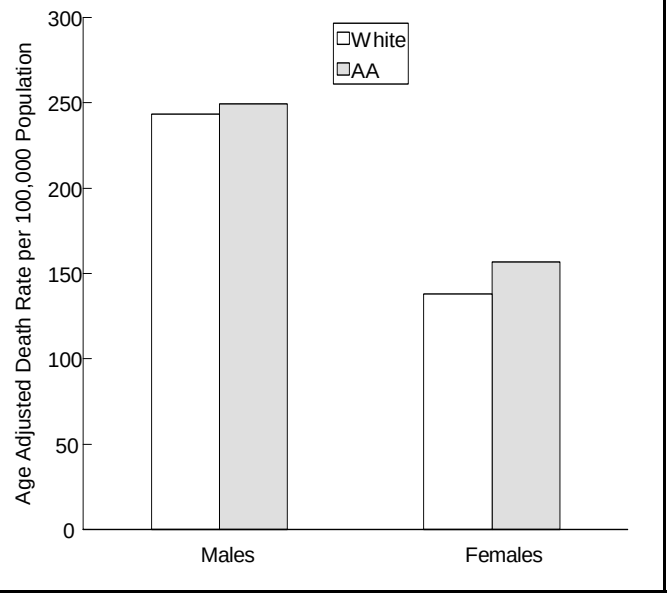
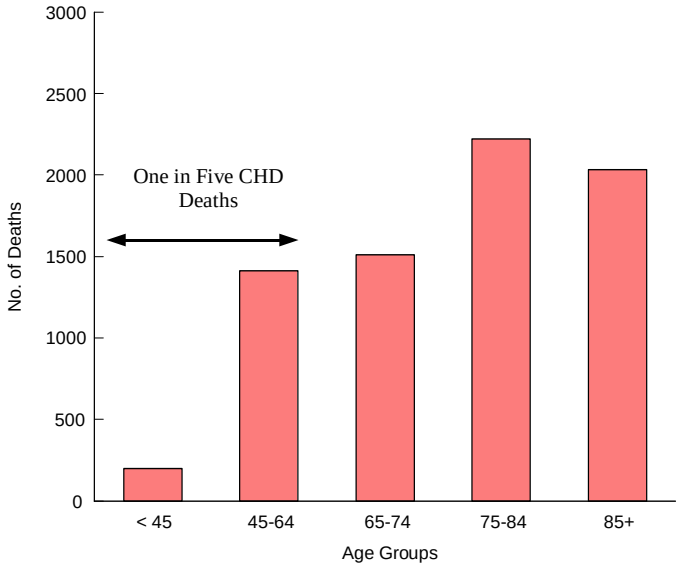


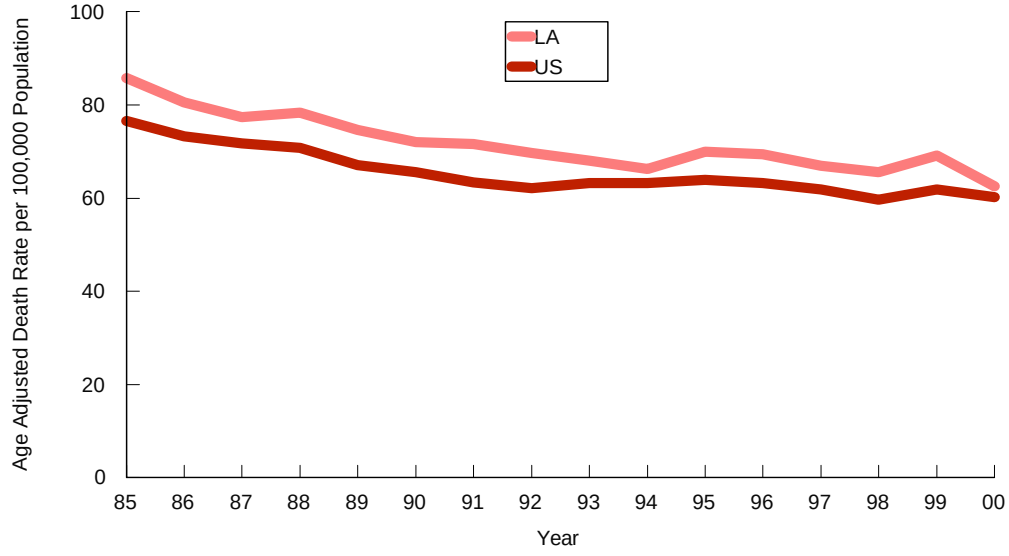
Figure 7. Coronary Heart Disease deaths in Louisiana by age group, 2000



Stroke Mortality In Louisiana

Stroke, technically known as a cerebrovascular accident, refers to an infarct (loss of blood supply due to a blocked artery) or hemorrhage in the brain. Of the 14,977 CVD deaths in 2000, 2,494 (17%) were due to stroke. Age-adjusted death rates from stroke have decreased over the past decade, both in Louisiana and the US (Figure 8); however, since 1992 the rate of decline has slowed. In Louisiana, the stroke death rate decreased an average of 2.7% per year from 1985 to 1992, but only 1.5% per year from 1992 to 2000. Age-adjusted stroke death rates in Louisiana have been consistently higher than the US rate, with Louisiana's rate 12% above the US rate in 1985, but only 4% above the US rate in 2000.

Figure 8. Stroke death rates in Louisiana and the United States, 1985-2000



Unlike Coronary Heart Disease (CHD) deaths, for which sex differences are more striking than racial differences, age-adjusted stroke deaths are much higher for African Americans than Whites. In 2000, the age-adjusted stroke death rate for African Americans (84.6) was 1.5 times the rate for Whites (56.1). African American males had a higher age-adjusted death rate (93.3) from stroke than African American females (78.1), but the rates for White males (55.9) and White females (55.1) were almost the same in 2000 (Figure 9).

As for most other types of cardiovascular disease, the stroke mortality rate increases with age. Nonetheless, 16% of persons dying from stroke in Louisiana in 2000 were less than 65 years (Figure 10).

Figure 9. Stroke death rates in Louisiana by race and sex, 2000

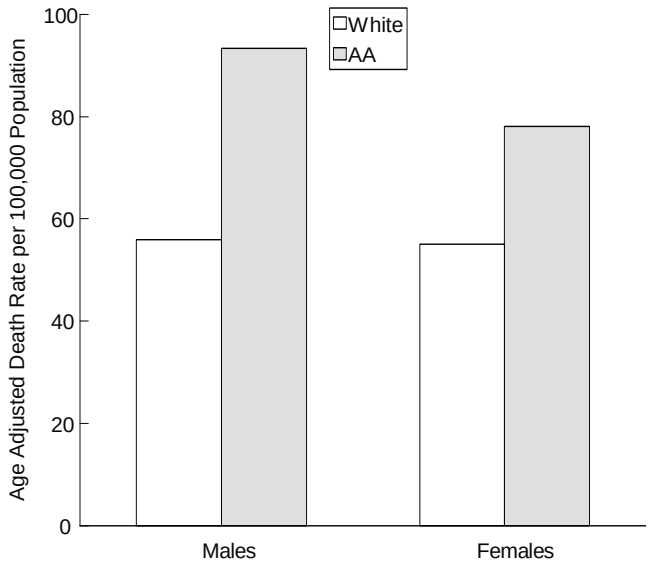
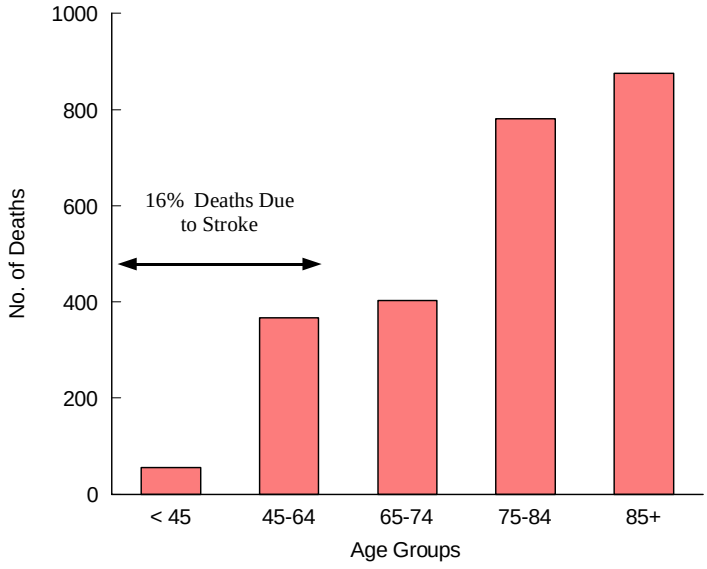


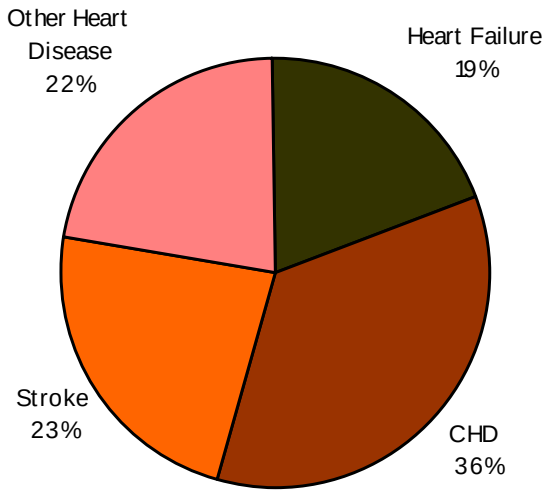
Figure 10. Stroke deaths in Louisiana by age group, 2000



Hospitalizations For Cardiovascular Disease In Louisiana

In addition to the approximately 15,000 Louisianans dying from CVD each year, many more Louisianans experience a heart attack, stroke, or other cardiovascular diseases that are not fatal. For most of these CVD survivors, their lives have changed forever. Most will need medications for the rest of their lives, and some are left with permanent, severe disabilities such as the loss of speech or the inability to move an arm or leg. The burden of non-fatal CVD in Louisiana can be estimated by examining hospitalizations for the various CVD conditions.

Figure 11. Cardiovascular disease hospitalizations, Louisiana residents, 1999



In 1999, of the 537,362 hospitalizations in Louisiana, 14.2% were for CVD. There were 76,092 hospitalizations due to CVD among Louisiana residents, an average of five hospitalizations for every CVD death. Louisiana residents spent a total of 383,708 days in the hospital due to CVD, at a cost of $1.4 *billion*. The average hospitalization for CVD lasted 5 days and incurred $17,368 in charges.

A majority of the primary diagnoses for CVD hospitalizations were coronary heart disease, stroke, and heart failure (Figure 11). Coronary heart disease accounted for 26,465 hospitalizations with an average length of stay of 4 days and average hospital charges of $23,699 per patient. There were 17,718 hospitalizations for stroke, with an average length of stay of 6 days, and average hospital charges of $17,836 per patient. Heart failure accounted for 14,832 hospitalizations, with an average length of stay of 5 days and average hospital charges of $12,961 per patient (Table 1). In addition to hospital charges, other indirect costs associated with CVD include long-term care and rehabilitation, lost productivity, and lost family resources, particularly among individuals with permanent disabilities. These additional costs far exceed the hospital charges. The health and economic burden that CVD places on the health care system is profound, and will continue to increase as our population ages.

Table 1. Hospitalization Charges for CVD in Louisiana, 1999

Discharged	Coronary Heart Disease	Stroke	Heart Failure	Other Conditions
Total Number	26,465	17,718	14,832	17,077
Males	15,079	8,185	6,401	7,313
Females	11,385	9,532	8,429	9,764
44 and Younger	1,715	844	666	2,157
45-54	4,441	1,673	1,282	2,135
55-64	6,188	2,952	2,088	2,639
65-74	7,374	5,082	3,841	4,117
75-84	5,223	4,859	4,393	4,298
85+	1,523	2,308	2,562	1,731
Total Charges	$627,207,953	$316,021,050	$192,240,861	$253,436,940
Total Hospital Days	116,614	106,171	80,638	80,285
Average Length of Stay	4	6	5	5
Average Charge per patient	$23,699	$17,836	$12,961	$14,840

Cardiovascular Disease Statistics By Parish

For each of Louisiana's parish, Table 2 shows the number of CVD deaths in 2000 (column 1), the percent of all deaths caused by CVD (column 2), and the average annual age-adjusted mortality rate for CVD from 1998 to 2000 (column 5). Age-adjusted death rates were calculated for three-year periods due to parishes with small populations that had too few CVD deaths to calculate an age-adjusted death rate accurately on a per year basis.

Caution should be used when making comparisons among age-adjusted death rates, because parishes with small populations are more likely to have wide variations in rates from year to year, simply due to chance. For example, if a parish had 20 CVD deaths in one year, and 25 CVD deaths the next year, the age adjusted death rate would increase by 25%, a change that appears larger on a percentage basis, even though the increase in the number of deaths was only five.

Figure 12 (map) shows average annual age-adjusted CVD death rates by parish during the period 1998 through 2000. Parishes with the highest CVD death rates are clustered in the northern region, along the state's northeastern border.

Figure 12. CVD Mortality Rates By Parish 1998-2000

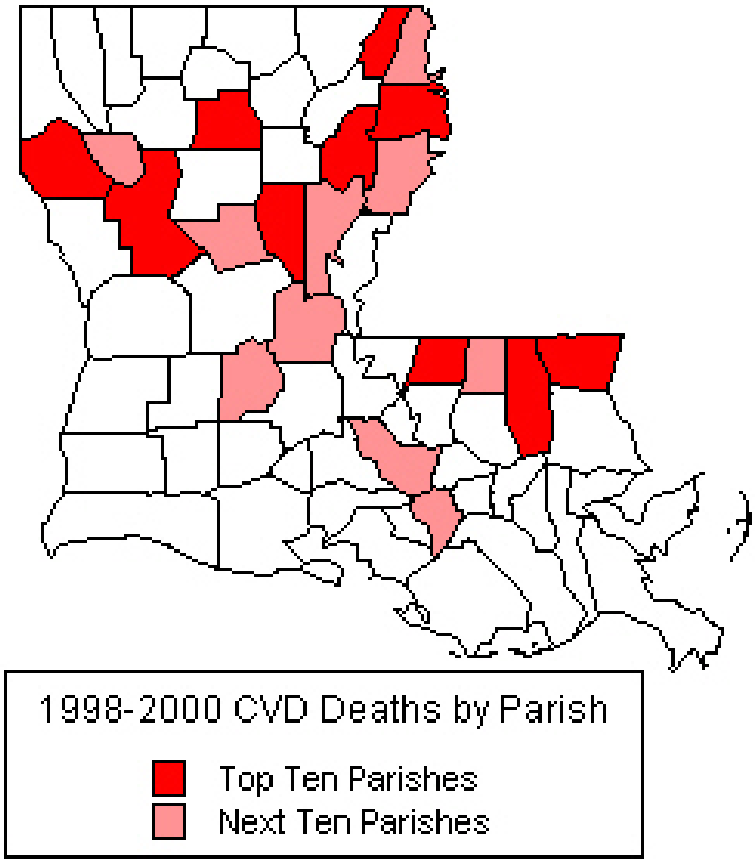


Table 2. Cardiovascular Disease Death Rates By Parish

Parish	# of CVD Deaths in 2000	% of All Deaths	Age-Adjusted Death Rate* 1992-94	Age-Adjusted Death Rate* 1995-97	Age-Adjusted Death Rate* 1998-00	Rank 1998-00	# of CVD Deaths in 2000 Male	# of CVD Deaths in 2000 Female
LOUISIANA	14977	37%	434.5	413.7	388.6		7048	7929
Acadia	232	39%	472.8	471.2	407.8	34	102	130
Allen	79	32%	469.6	410.9	406.2	30	35	44
Ascension	175	37%	421.1	437.9	383.0	22	80	95
Assumption	77	41%	468.2	393.2	433.4	48	36	41
Avoyelles	189	39%	495.6	458.0	452.7	55	97	92
Beauregard	112	37%	467.1	461.3	409.8	35	66	46
Bienville	92	40%	382.5	407.6	401.0	28	39	53
Bossier	270	35%	378.3	384.9	347.1	8	124	146
Caddo	909	35%	387.7	358.8	335.9	6	404	505
Calcasieu	596	36%	448.8	422.6	400.6	29	279	317
Caldwell	38	34%	472.2	433.4	395.8	27	18	20
Cameron	18	29%	439.2	434.4	312.0	4	9	9
Catahoula	43	41%	427.2	414.5	428.8	45	21	22
Claiborne	100	41%	451.2	399.1	373.9	17	32	68
Concordia	56	29%	428.1	473.3	360.0	11	27	29
DeSoto	113	38%	498.2	493.1	465.5	59	51	62
E. Baton Rouge	1224	38%	429.9	429.9	410.0	37	564	660
E. Carroll	49	41%	564.1	479.5	432.5	47	20	29
E. Feliciana	91	43%	484.4	541.4	523.7	62	50	41
Evangeline	157	38%	437.3	416.9	429.5	46	67	90
Franklin	161	57%	454.3	455.6	549.9	63	85	76
Grant	87	41%	452.6	425.6	443.4	50	39	48
Iberia	248	41%	398.3	433.7	405.1	32	118	130
Iberville	123	39%	405.8	419.4	446.2	51	54	69
Jackson	90	47%	451.5	465.7	461.9	56	45	45
Jefferson	1445	35%	428.9	432.7	381.5	19	670	775
Jeff. Davis	121	36%	427.3	450.8	411.9	39	59	62
Lafayette	472	35%	377.7	359.4	356.3	10	210	262
Lafourche	253	36%	439.0	387.3	374.0	16	130	123
LaSalle	88	48%	415.3	452.3	499.1	61	46	42
Lincoln	101	28%	437.1	326.5	294.1	2	44	57
Livingston	184	28%	430.6	326.1	286.7	1	108	76
Madison	76	49%	590.7	498.0	571.3	64	36	40
Morehouse	134	38%	439.4	441.5	416.8	42	78	56
Natchitoches	179	44%	446.5	444.9	462.1	57	84	95
Orleans	1720	34%	430.1	394.7	389.6	25	788	932
Ouachita	471	34%	400.2	379.2	376.2	18	230	241
Plaquemines	82	40%	452.5	411.6	366.7	13	40	42
Pt. Coupee	98	40%	431.5	438.5	414.7	41	56	42
Rapides	515	39%	455.3	440.4	410.1	38	231	284
Red River	50	42%	644.4	591.3	438.7	49	25	25
Richland	99	36%	441.4	423.9	406.4	33	49	50
Sabine	118	43%	399.0	416.6	392.8	26	50	68
St. Bernard	232	33%	493.5	443.7	372.7	14	108	124
St. Charles	142	42%	393.8	410.3	409.7	36	60	82
St. Helena	42	45%	490.9	418.0	447.8	52	21	21
St. James	70	37%	403.4	411.5	373.7	15	31	39
St. John	112	37%	508.1	442.0	381.7	20	54	58
St. Landry	350	41%	471.9	462.6	418.2	43	165	185
St. Martin	132	32%	428.3	441.2	362.8	12	73	59
St. Mary	153	33%	424.2	412.8	352.4	9	76	77
St. Tammany	472	33%	410.8	393.6	330.5	5	243	229
Tangipahoa	320	34%	578.6	487.3	456.1	54	148	172
Tensas	29	37%	631.0	621.2	450.5	53	13	16
Terrebonne	306	40%	471.5	449.8	384.3	24	155	151
Union	109	39%	498.4	418.6	406.6	31	43	66
Vermilion	207	40%	414.2	400.4	381.5	21	102	105
Vernon	103	31%	459.5	410.1	340.6	7	50	53
Washington	222	40%	526.8	479.6	482.1	60	99	123
Webster	206	40%	466.1	409.8	382.8	23	90	116
W. Baton Rouge	68	43%	468.3	425.4	424.6	44	41	27
W. Carroll	58	40%	469.4	435.6	464.3	58	24	34
W. Feliciana	32	33%	351.4	402.0	309.3	3	17	15
Winn	71	35%	407.9	474.5	411.0	40	34	37

*Age-adjusted death rates are per 100,000 U.S. standard population, based on the year 2000 standard

Cardiovascular Disease Risk Factors

Most CVD risk factors are modifiable, meaning that individuals can change their behavior to slow, or even reverse, the process of arterial blockage and decrease their risk of having a heart attack or stroke. Modifiable risk factors include smoking, high blood pressure, high blood cholesterol level, overweight/or obesity, lack of regular physical activity, poor diet, and diabetes.

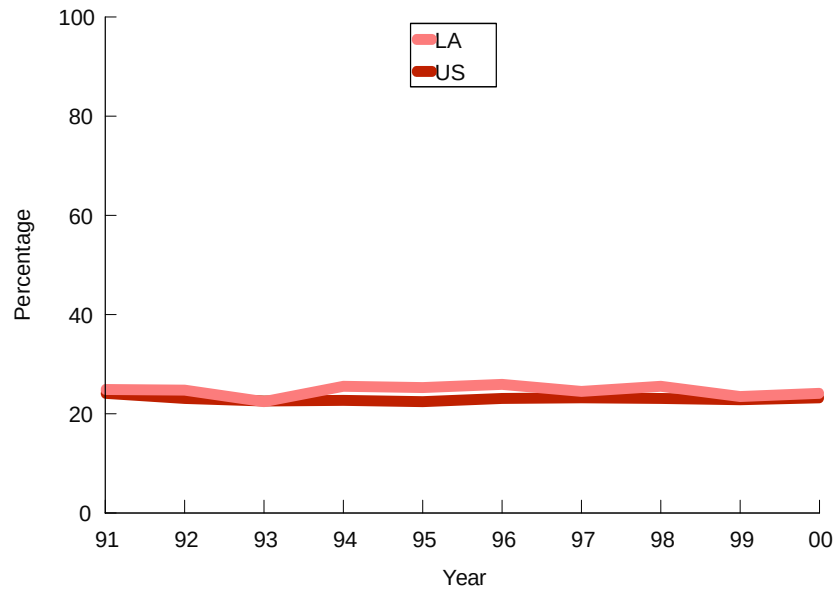
Some CVD risk factors cannot be changed, such as age (CVD mortality increases with age), sex (males have higher CVD mortality rates than women, especially before menopause), race (African Americans generally have higher rates than Whites) and a family history of heart attacks at a young age. Individuals with unmodifiable risk factors should be particularly diligent in eliminating modifiable risk factors.

Smoking

Tobacco is a major risk factor for CVD, in addition to its well-known association with cancer. In fact, each year smoking causes more deaths from heart attacks than from cancer. The percentage of Louisianans who currently smoke has remained constant over the last decade (Figure 13). In 2000, 24 percent of Louisiana adults reported that they currently smoke cigarettes.

Tobacco use prevention and cessation are key to reducing the morbidity and mortality due to tobacco use. The good news is that giving up smoking quickly reduces the chance of developing CVD. Within five years, the chances of having a heart attack are 50% to 70% lower for former smokers compared with current smokers. Beyond getting current smokers to quit, it is equally important to prevent people, especially youth, from starting to smoke.

Figure 13. Percentage of adults reporting current smoking, Louisiana vs. US, 1991-2000



High Blood Pressure

High blood pressure or hypertension is a major risk factor for both heart disease and stroke. One in four adult Louisianans suffer with high blood pressure (Figure 14). The proportion of Louisianans with undiagnosed hypertension is unknown. Nationally, only two thirds of people with high blood pressure know they have it, one half are being treated, and one fourth are under control. High blood pressure is a major risk factor for both CHD and Stroke. It is important to ensure adequate control of high blood pressure (Table 3) through exercise, weight management and medication.

Figure 14. Percentage of Louisianans reporting high blood pressure, Louisiana vs. US, 1991-2000

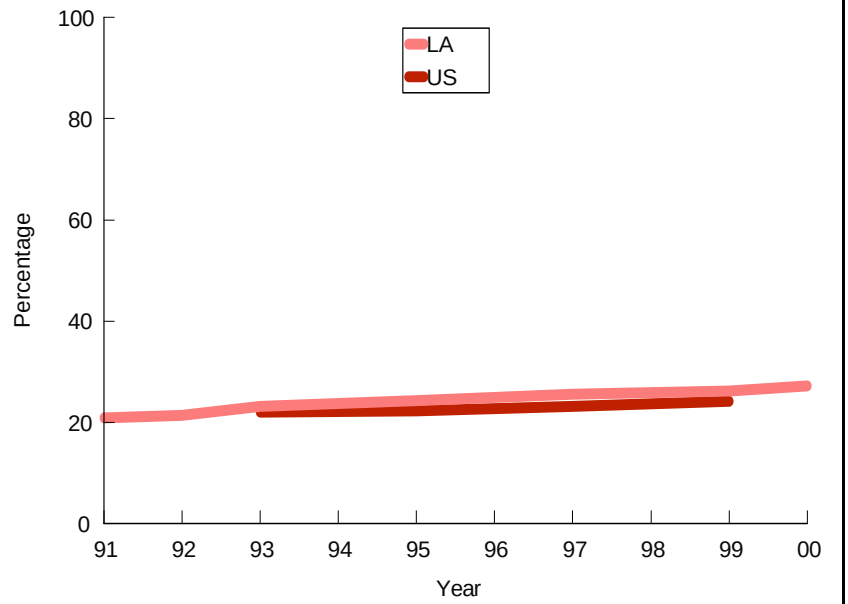


Table 3. Classification of Blood Pressure for Adults age 18 & Older*

Category	Systolic (mm Hg)		Diastolic (mm Hg)
Optimal**	<120	and	<80
Normal	<130	and	<85
High normal	130-139	or	85-89
Hypertension***			
Stage 1	140-159	or	90-99
Stage 2	160-196	or	100-109
Stage 3	≥180	or	≥110

* Not Taking antihypertensive drugs and not acutely ill. When systolic and diastolic blood pressures fall into different categories, the higher category should be selected to classify the individual's blood pressure status. For example, 160/92 mm Hg should be classified as Stage 2 hypertension, and 174/120 mm Hg should be classified as Stage 3 hypertension. Isolated systolic hypertension is defined as SBP of 140 mm Hg or greater and DBP below 90 mm Hg and staged appropriately (e.g., 170/82 mm Hg is defined as Stage 2 isolated hypertension). In addition to classifying stages of hypertension on the basis of average blood pressure levels, clinicians should specify presence or absence of target organ disease and additional risk factors. This specificity is important for risk classification and treatment.

**Optimal blood pressure with respect to cardiovascular risk is below 120/80 mm Hg. However, unusually low readings should be evaluated for clinical significance.

*** Based on the average of two or more readings taken at each of two or more visits after an initial screening.

Joint National Committee on Detection, Evaluation and Treatment of High Blood Pressure. The Sixth Report of the National Committee on Detection, Evaluation and Treatment of High Blood Pressure (JNC VI)

High Cholesterol

Elevated cholesterol is one of the strongest risk factors associated with Coronary Heart Disease. Cholesterol plays a direct role in the atherosclerotic process, the disease process that underlies heart disease and stroke, where cholesterol accumulates on the arterial walls, building plaque and restricting blood flow. Low-density lipoprotein (LDL), the "bad cholesterol," clogs the arteries to the heart and increases the risk for heart disease. High-density lipoprotein (HDL), the "good cholesterol," decreases the risk for heart disease. A high total cholesterol level increases the risk for heart disease. Lowering high total blood cholesterol levels can decrease the likelihood of death from heart disease.

The percentage of Louisiana adults (35 years and older) who have not had their blood cholesterol checked within the previous five years was 23% in 2000. Of persons who had ever been checked, the percentage who reported that they have high cholesterol was 31% in 2000 (Figure 15).

Cholesterol levels can be controlled through a combination of diet and medications. In adults, a total cholesterol level of 200 mg/dL or higher is considered high risk; LDL levels >130 mg/dL or HDL levels <40mg/dL are also considered high risk (Table 4). The National Institutes of Health recommend that all persons over the age of 20 years get a fasting lipoprotein profile (total cholesterol, LCD cholesterol, HDL cholesterol, triglycerides) every 5 years.

Table 4. Total Blood Cholesterol & HDL-Cholesterol Categories

Total Cholesterol

Less than 200 mg/dL……Desirable

200 to 239 mg/dL……..……Borderline-High

240 mg/dL or greater……High

HDL- Cholesterol

Less than 35 mg/dL……..Low HDL-Cholesterol

[These categories apply to adults age 20 and above]

LDL – Cholesterol Categories

Less than 130 mg/dL……Desirable

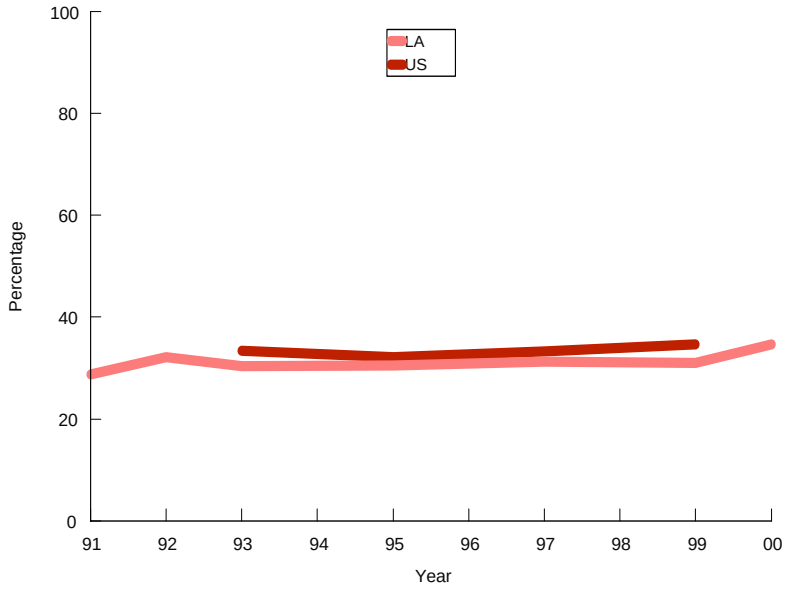
130 to 159 mg/dL…….……Borderline-High Risk

160 mg/dL and above……High Risk

[These categories apply to adults age 20 and above]

Second Report of the Expert Panel on Detection, Evaluation and Treatment of High Blood Cholesterol in Adults.

Figure 15. Percentage of Louisianans (35 years and older) reporting high Cholesterol, Louisiana vs. US, 1991-2000



Physical Activity

Regular, moderate or vigorous physical activity can reduce the risk for CVD. A vast majority of Louisianans are not physically active on a regular basis (Figure 16). Approximately 85% of Louisiana adults do not get regular physical activity which is defined as engaging in at least 30 minutes per day of moderate-intensity activity, such as walking at a brisk pace, on 5 or more days a week.

Figure 16. Percentage of Louisianans reporting no regular physical activity, 1991-2000

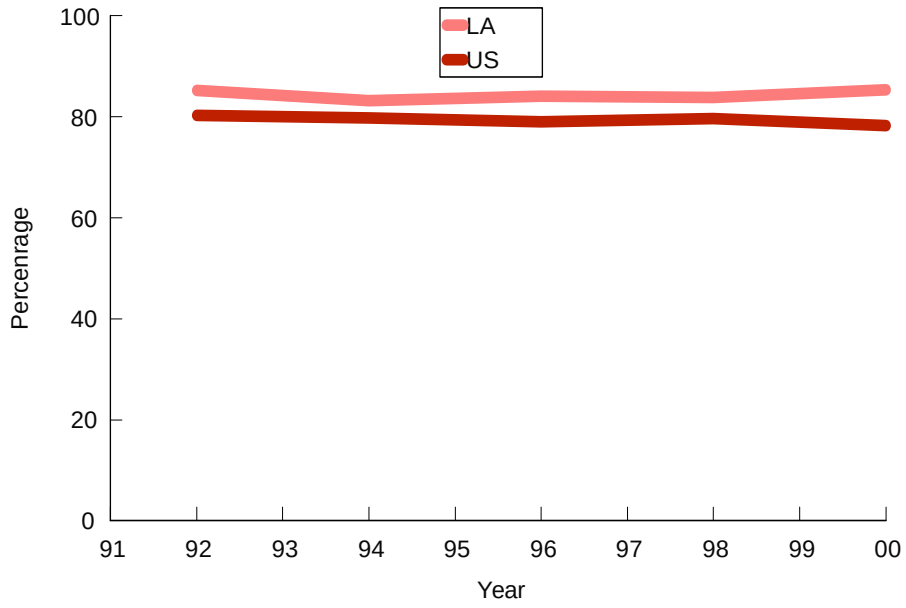
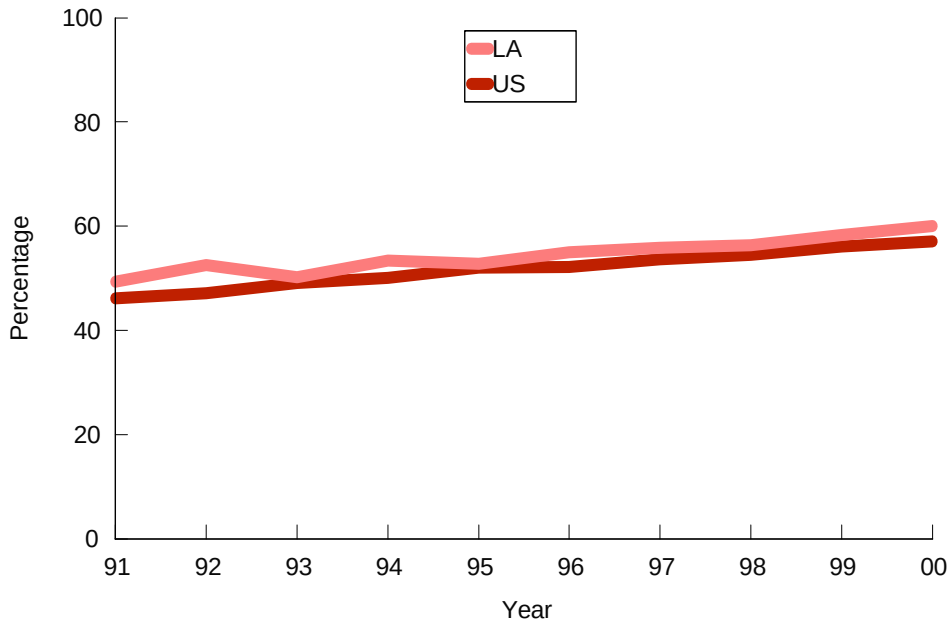


Figure 17. Percentage of Louisianans overweight or obese, Louisiana vs. US, 1991-2000



Overweight and Obesity

Overweight and obese adults are at increased risk for CVD. The epidemic of adults suffering from being overweight (BMI $\geq$ 25.0Kg/m^2) or obese (BMI$\geq$ 30Kg/m^2) has been on the rise both in Louisiana and the US (Figure 17). Over the last decade the percent of overweight and /or obese Louisianans increased from 49% to 60%. The prevalence of overweight and /or obese adults in Louisiana is higher than the median of 57% for the US. Losing weight and being physically active on a regular basis can improve blood pressure and cholesterol levels, and can decrease the chances of developing diabetes, another risk factor for heart disease.

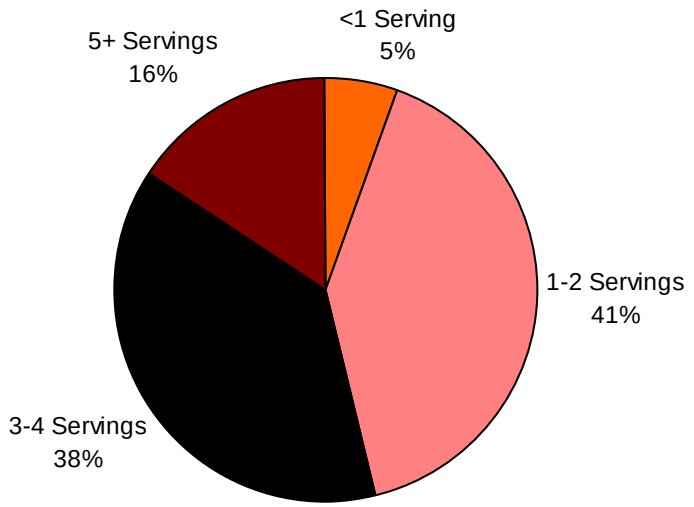
Diabetes

Persons with diabetes have twice the risk for cardiovascular disease compared to persons who do not have diabetes. The prevalence of diabetes has increased nationwide during the past decade. In Louisiana, the prevalence of diabetes among adults increased from 6.3% in 1991 to 6.6% in 2000, with a disproportionate increase observed among African Americans. Of the two major types of diabetes (Type 1, Type 2 diabetes). Type 2 diabetes can be prevented by maintaining normal body weight and staying physically active. Persons with diabetes can prevent complications by maintaining good blood sugar control, having routine feet and eye exams, not smoking, eating a healthy diet, getting regular physical activity, and maintaining normal blood pressure.

Diet

Eating five or more servings of fruits or vegetables per day can help prevent heart disease, cancer, and other chronic conditions. In 2000, 85% of Louisianans reported that they did not consume at least five servings of fruits and vegetables per day (Figure 18).

Figure 18. Daily servings of fruits and vegetables consumed by Louisianans, 2000



Previous Cardiovascular Disease

In 2000, approximately 10% of Louisiana adults reported having been told by a doctor that they had experienced a heart attack, stroke, or had coronary heart disease. The American Heart Association recommends consideration of the use of aspirin for persons who have had a heart attack, unstable angina, ischemic stroke or transient ischemic attack to reduce the progression of disease. Of the Louisianans reporting a history of heart attack, stroke or ischemic heart disease, 67% reported taking aspirin every day. For certain types of heart conditions, other medications may be needed to reduce the risk of recurrence.

Clustering of CVD Risk Factors

Approximately 90% (Table 5) of adult Louisianans have at least one of the three primary CVD risk factors. An individual can decrease his/her personal risk of having a heart attack or stroke by eliminating modifiable risk factors. The good news is that health improves when even one or two risk factors are improved.

Table 5. The Number and Percentage of Louisianans With Modifiable Risk Factors* For CVD, 2000

Number of Risk Factors	Number of Adult** Louisianans	Percent of Adult** Louisianans
0	94,103	3.0
1	753,396	24.1
2	1,223,845	38.9
3	783,398	24.9
4	247,228	7.9
5	36,512	1.2

* Modifiable risk factors include High Blood Pressure, High Cholesterol, Smoking, Physical Inactivity, and Overweight/Obesity.

** 18 years of age or older

Conclusions

This report summarizes the most recent information available on cardiovascular disease deaths and hospitalizations in Louisiana, and the associated health risk behaviors among adult Louisianans. Cardiovascular disease death rates in Louisiana are among the highest in the nation.

The most important finding of this report is the slowing of the decline in CVD death rates over the past decade and the increase in the prevalence of CVD risk factors among adult Louisianans. Given the complex nature of the factors involved in the development and progression of CVD, it is difficult to explain conclusively the reasons for the trends in CVD death rates.

Advances in the field of medicine have certainly contributed to the increased rates of survival following an episode of heart attack or stroke. Although rates of CVD-related deaths have declined among African Americans and Whites, a great disparity still exists between these populations. Mortality due to CVD remains the leading cause of death among African Americans.

The practical implications of these findings are clear. Because most heart attacks and strokes result from a process of arterial blockage that begins at an early age, a greater effort should be made to reduce the prevalence of risk factors among all Louisianans, including children and adolescents. Reducing CVD risk factors involves not smoking, controlling high blood pressure, reducing blood cholesterol, engaging in regular physical activity, and eating a healthy diet.

Programs aimed toward behavioral change are difficult to sustain and therefore, a shift towards policy and environmental change would make it easier for individuals to change their behavior. Examples of environmental and policy changes might include creation of more bike and/or walking paths in our communities, and encouraging smoke-free indoor air policies.

A great proportion of death and disability due to CVD is preventable. A collaborative effort involving individuals, communities, schools, and workplaces to create 'heart-healthy' environments and policies is needed to reduce the burden of cardiovascular disease thus paving the way for a 'heart-healthy' Louisiana.

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Louisiana Office of Public Health

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Appendix: methods, definitions, and abbreviations

Methods

Age-adjusted morality rates for the US from 1985 through 1998 were obtained via WONDER at http://wonder.cdc.gov from the compressed mortality file compiled by the National Center for Health Statistics, CDC. The following ICD-9 codes were used: CVD 390-448; ischemic heart disease, 410-414; and stroke 430-438. The year 2000 projected population was used as the standard population.

Age-adjusted mortality rates for Louisiana from 1985-2000 were based on death certificate data provided by the State Center for Health Statistics of the Louisiana Office of Public Health. The following ICD-10 codes were used for CVD: I00-99; ischemic heart disease, I20-25; stroke, I60-69; hypertensive disease, I11, I13; other CVD codes not already categorized. ICD-10 codes for stroke included subarachnoid hemorrhage, I60; other cerebral hemorrhage, I61-62; occlusion, I63; acute ill-defined, I64; other ill-defined, I67; sequelae, I69. Age-adjusted death rates for Louisiana were calculated using the direct method with population estimates from the U.S. Bureau of the Census and the U.S. 2000 projected population as the standard.

Age-adjusted CVD death rates for the US in 1999 were obtained from the National Vital Statistics Report, Vol. 49, No. 3, June 26, 2001. Age-adjusted CVD death rates for the US in 2000 were obtained from the National Vital Statistics Report, Vol. 49, No. 12, October 9, 2001.

Data on hospitalizations at acute care hospitals in Louisiana is preliminary data for 1999 and were provided by the Louisiana Hospital Inpatient Discharge Database (LAHIDD) project, State Health Care Data Clearinghouse, State Center for Health Statistics, Louisiana Office of Public Health, Department of Health and Hospitals. The following ICD-9 codes were used for principle diagnosis: CVD, 390-448; ischemic heart disease, 410-414; stroke, 430-438; and heart failure, 428.

Age-adjusted mortality rates for Louisiana were calculated using data from death certificates provided by State Center for Health

Statistics. The number of deaths for 1999 and 2000 were determined using the ICD-10 codes, (CVD, I00-99; ischemic heart disease, I20-25; stroke, I60-69). The number of deaths for 1995-1998 was determined using ICD-9 codes that correspond to the new ICD-10 codes (CVD, 390-434,436-448; IHD 410-414; stroke, 430-434,436-438). The number of deaths for 1998 was not adjusted using the "comparability ratio" before calculating age-adjusted mortality rates. The "comparability ratio" compensates for the change in coding systems and according to the National Vital Statistics Report, Vol. 49, No.2, May 18, 2001 the comparability ratio for Major Cardiovascular Diseases (I00-99) is 0.9981. The high ratio of comparability assures reliability of data comparison between the two coding systems. The year 2000 projected population was used as the standard population.

Data on risk factors were obtained from the Louisiana Behavioral Risk Factor Surveillance System (LA-BRFSS). LA-BRFSS is a continuous, statewide, random-digit-dialed telephone survey of a representative sample of the Louisiana civilian non-institutionalized adult population (18 years and older). From 1990-99, the sample size remained at approximately 1656. However, in the year 2000, the sample size was increased to approximately 5000.

CVD risk factors assessed by the BRFSS include the following:

Current smoker: Defined as someone who has smoked at least 100 cigarettes in their lifetime and smokes now.

High blood pressure: Defined as ever having been told by a doctor, nurse, or health professional that your blood pressure was high out of those who had their blood pressure checked.

High cholesterol: Defined as ever having been told by a doctor or health professional that your blood cholesterol level was high out of those who had their blood cholesterol checked.

Regular physical activity: Defined as 30 minutes of moderate intensity physical activity 5 or more days a week.

Overweight: Defined as a body mass index [BMI] greater than 25.0 Kg/m^2. BMI equals weight (in kilograms) divided by height (in centimeters) squared. Using weight (in pounds) and height (in inches), BMI equals 705 times weight divided by height squared.

Obese: Defined as a body mass index [BMI] greater than 30.0 Kg/m^2.

Daily servings of fruits and vegetables: Number of servings of fruit, fruit juice, green salad, potatoes, carrots, and other vegetables consumed per day based on reports of consumption during the past day, week, month, or year.

Diabetes: Defined as ever having been told by a doctor that you have diabetes.

Previous cardiovascular disease: Defined as ever having been told by a doctor that you had a heart attack or myocardial infarction, angina or coronary heart disease, or a stroke.

Glossary

Age-adjusted death rate: a rate calculated based on a standard age distribution that allows for the comparison of rates in populations with different age structures, presented as rate/100,000 population.

Angina: pain or discomfort in the chest that occurs when the heart does not receive enough blood.

Atherosclerosis: hardening of the arteries resulting from deposits of cholesterol and other substances in the blood in the walls of arteries.

Cardiovascular disease (CVD): includes a wide variety of diseases of the heart and blood vessels, including ischemic heart disease (coronary heart disease), high blood pressure, stroke, and hypertensive heart disease.

Cholesterol: waxy substance in blood that gets deposited in blood vessel walls, causing atherosclerosis, when blood cholesterol levels are high.

HDL (high-density lipoprotein): carries cholesterol away from other parts of the body back to the liver for removal from the body.

Heart attack (also known as myocardial infarction): occurs when a coronary artery is partially or completely blocked, usually by a blood clot, resulting in a lack of blood flow and oxygen to the heart muscle, causing part of it to die.

Heart Failure: condition in which the heart cannot pump enough blood to meet the body's needs.

Hospital charges: a hospital's full established rates, which do not necessarily reflect costs or reimbursement.

LDL (low-density lipoprotein): referred to as "bad" cholesterol, it carries cholesterol to various tissues throughout the body and elevated levels of LDL correlate directly with coronary heart disease.

Abbreviations

BMI = Body Mass Index
CDC = Centers for Disease Control and Prevention
CHD = Coronary Heart Disease
CHF = Congestive Heart Failure
CVD = Cardiovascular disease
HDL = High-Density Lipoprotein
ICD-9 = The International Classification of Diseases, 9th Revision
ICD-10 = The International Classification of Diseases, 10th Revision
LDL = Low-Density Lipoprotein

Knowing the Signals of a Heart Attack Could Save Your Life:

- *Uncomfortable pressure, fullness, squeezing, or pain in the center lasting two minutes or longer*
- *Pain spreading to the shoulders, neck, or arms.*
- *Severe chest pain, lightheadedness, fainting, sweating, nausea or shortness of breath.*

Reduce Your Risk for Heart Disease and Stroke

Don't smoke cigarettes. Tobacco use is the number one preventable cause of heart disease in the U.S. Tobacco makes your blood clot more easily, stiffens the walls of your arteries, and deprives your heart of needed oxygen. The message is simple: if you use tobacco, stop; if you don't use tobacco, don't start.

Stay active. Moderate physical activity (such as walking or yard work) for a total of 30 minutes a day on most days of the week helps keep your weight down, allows your body to get rid of "bad" cholesterol, and can help keep your blood pressure under control. Recent research shows that you don't have to do your daily allotment of physical activity all at once. Ten or fifteen minutes at a time will do the trick, as long as it adds up to at least 30 minutes most days of the week. Just make physical activity a regular part of your life.

Eat less fat. Dietary fats, especially animal fats, pose another big threat to your heart. The National Institutes of Health recommend that you keep your fat intake to 25% to 35% of total calories and consume no more than 7% of your total calories from animal or saturated fats. Use the FDA "Nutrition Facts" on the label of all processed foods to help you cut down on your fat intake. The American Heart Association also has free dietary recommendations.

Check your blood pressure. Uncontrolled high blood pressure is a leading risk factor for stroke, which is like a heart attack, only in the brain. Stroke is a leading cause of disability among adults and the third leading cause of death in Louisiana. If your blood pressure is normal, get it checked at least every two years.

If your blood pressure is 130/85 or over, consult a physician. He or she can help you get it under control.

Check your cholesterol level. If your cholesterol is normal (total cholesterol less than 200), get it checked every five years. If it is high, see your doctor about getting it under control. Eating foods that contain very little cholesterol, such as many fruits and vegetables, and staying physically active are two easy ways to keep your cholesterol low.

Recognize and treat diabetes. Having diabetes (high blood sugar) can seriously increase your risk of stroke and heart disease. If you have diabetes (high blood sugar), you can prevent or delay heart and blood vessel disease by controlling your weight, cholesterol, and blood pressure. In addition, never stop taking your diabetes medications without consulting your doctor first. Always consult your doctor if you have questions about your medications for diabetes and high blood pressure.

Know your family's heart history. Heart disease often runs in families. If your family has a history of early heart disease, you may be at increased risk. If so, do not despair. You can readily reduce that risk by following the above steps. Your family will thank you for it.

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The 2001 Louisiana State of the Heart Report is published by the American Heart Association. Mortality statistics contained in this report are taken from data supplied by the State Center for Health Statistics, Louisiana Office of Public Health.